PCG-FR860/FR862

SERVICE MANUAL

Ver 1-2003G

Revision History
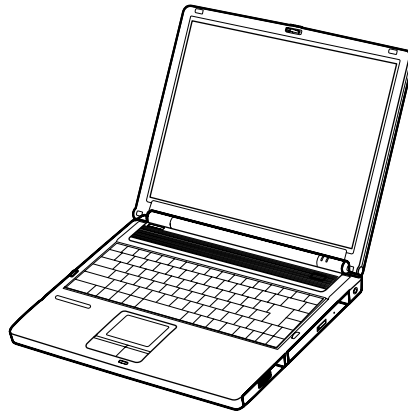
Lineup : PCG-FR862
PCG-FR860

Illust : PCG-FR862

S400

MEMORY STICK ™

VAIO
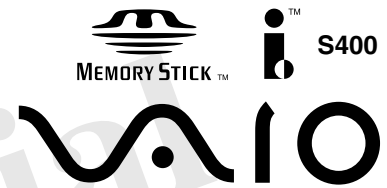
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• Design and specifications are subject to change without notice.

NOTEBOOK COMPUTER

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Caution Markings for Lithium/Ion Battery - The following or similar texts shall be provided on battery pack of equipment or in both the operating and the service instructions.

CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.

CAUTION: The battery pack used in this device may present a fire or chemical burn hazard if mistreated. Do not disassemble, heat above 100°C (212°F) or incinerate.
Dispose of used battery promptly.
Keep away from children.

CAUTION: Changing the back up battery.
• Overcharging, short circuiting, reverse charging, multilation or incineration of the cells must be avoided to prevent one or more of the following occurrences; release of toxic materials, release of hydrogen and/or oxygen gas, rise in surface temperature.
• If a cell has leaked or vented, it should be replaced immediately while avoiding to touch it without any protection.

✢✢

Service and Inspection Precautions

1. Obey precautionary markings and instructions

Labels and stamps on the cabinet, chassis, and components identify areas requiring special precautions. Be sure to observe these precautions, as well as all precautions listed in the operating manual and other associated documents.

2. Use designated parts only

The set's components possess important safety characteristics, such as noncombustibility and the ability to tolerate large voltages. Be sure that replacement parts possess the same safety characteristics as the originals. Also remember that the ⚠ mark, which appears in circuit diagrams and parts lists, denotes components that have particularly important safety functions; be extra sure to use only the designated components.

3. Always follow the original design when mounting parts and routing wires

The original layout includes various safety features, such as inclusion of insulating materials (tubes and tape) and the mounting of parts above the printer board. In addition, internal wiring has been routed and clamped so as to keep it away from hot or high-voltage parts. When mounting parts or routing wires, therefore, be sure to duplicate the original layout.

4. Inspect after completing service

After servicing, inspect to make sure that all screws, components, and wiring have been returned to their original condition. Also check the area around the repair location to ensure that repair work has caused no damage, and confirm safety.

5. When replacing chip components...

Never reuse components. Also remember that the negative side of tantalum capacitors is easily damaged by heat.

6. When handling flexible print boards...

• The temperature of the soldering-iron tip should be about 270C.
• Do not apply the tip more than three times to the same pattern.
• Handle patterns with care; never apply force.

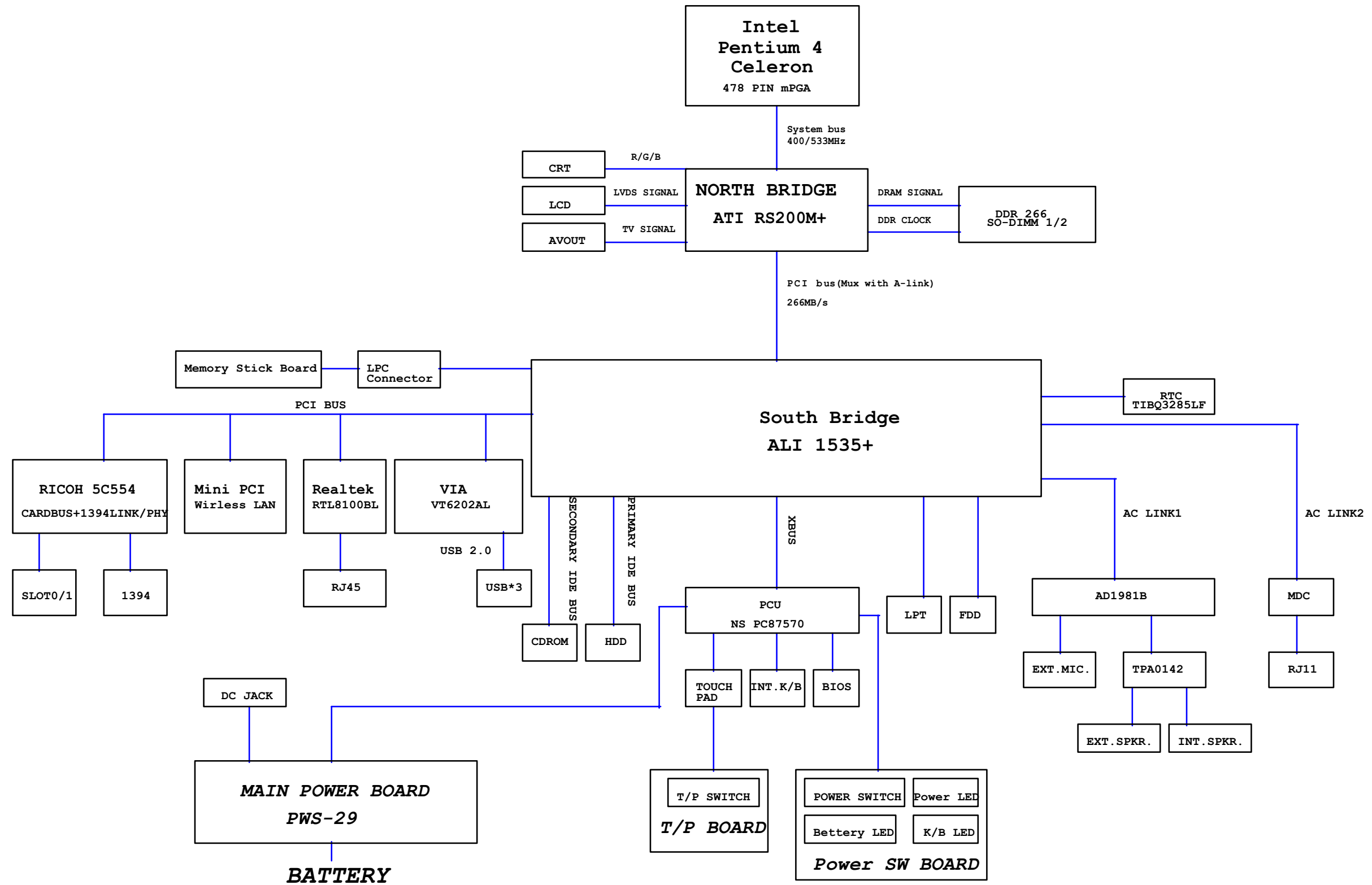Caution: Remember that hard disk drives are easily damaged by vibration. Always handle with care.

TABLE OF CONTENTS

History of the changes is shown as the
"Revision History" at the end of this data.

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PCG-FR860/FR862 (AM)

CHAPTER 1.
BLOCK DIAGRAM

Intel Pentium 4 Celeron
478 PIN mPGA

System bus 400/533MHz

NORTH BRIDGE ATI RS200M+

CRT — R/G/B
LCD — LVDS SIGNAL
AVOUT — TV SIGNAL

DRAM SIGNAL
DDR CLOCK

DDR 266 SO-DIMM 1/2

PCI bus(Mux with A-link) 266MB/s

Memory Stick Board — LPC Connector

PCI BUS

South Bridge ALI 1535+

RTC TIBQ3285LF

AC LINK1   AC LINK2

RICOH 5C554
CARDBUS+1394LINK/PHY

Mini PCI Wirless LAN

Realtek RTL8100BL

VIA VT6202AL

USB 2.0

SECONDARY IDE BUS
PRIMARY IDE BUS
XBUS

SLOT0/1   1394

RJ45

USB*3

CDROM   HDD

PCU NS PC87570

LPT   FDD

AD1981B

MDC

EXT.MIC.   TPA0142

RJ11

TOUCH PAD   INT.K/B   BIOS

EXT.SPKR.   INT.SPKR.

DC JACK

MAIN POWER BOARD
PWS-29

BATTERY

T/P SWITCH

T/P BOARD

POWER SWITCH   Power LED
Bettery LED   K/B LED

Power SW BOARD

PCG-FR860/FR862 (AM)

PCG-FR860/FR862 (AM)

NOTE:

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- When two or more parts are shown, use the part described first as the main part.
- The parts marked " $ " are the High Value Modules (HVM).
- The parts marked " # " are the parts on which barcode label is attached.
- The parts marked " & " are the "Customer Replacable Parts (CRP)" that can be replaced by Field Customer Support.
  Especially the parts with the <&> mark require the special attention to use them. Here fore, check first whether the desired part is one of the targetted parts of the Customer Replaceable Parts(CRP), or the non-targetted parts by referring to the exploded view.
- Regarding the boards of this model, the discrete parts on the boards cannot be replaced. However, Some connectors can be replaced.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité.
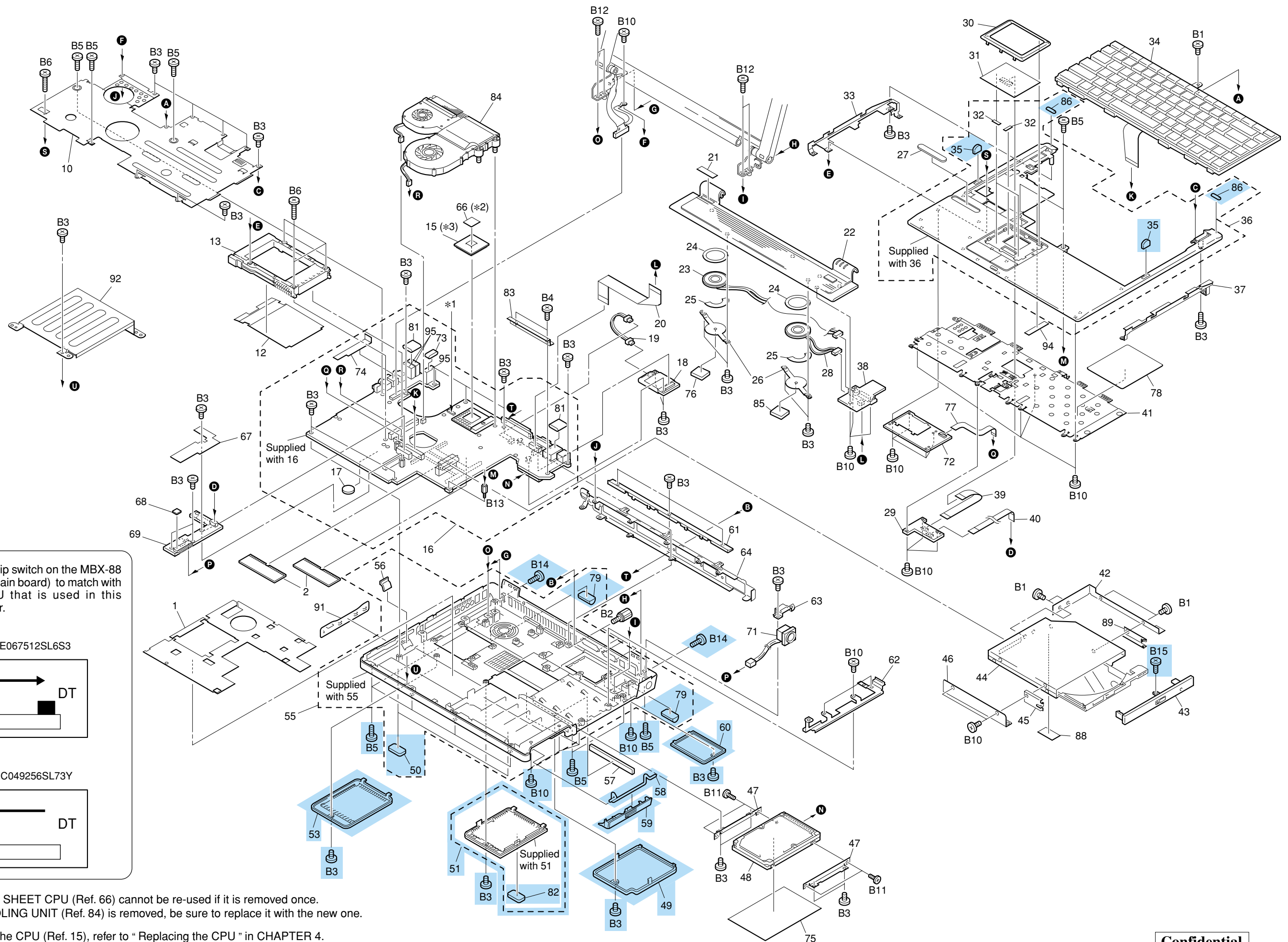Ne les remplacer que par une pièce portant le numéro spécifié.

【使用上の注意】

- ＊印の部品は常備在庫しておりません。
- 図面番号のない部品は供給しません。
- 併記部品の場合，上部記載部品をメイン部品として使用してください。
- 部品名称の前に＄印のついた部品は，High Value Module (HVM) です。
- 商品名称の前に＃印のついた部品は，バーコードラベル貼付部品です。
- 部品名称の前に＆印のついた部品は，お客様窓口などでも交換可能な Customer Replacable Parts (CRP)です。
  特に<&>印のついた部品は，使い分けが必要な部品ですので，分解図で Customer Replacable Parts 対象部品か，対象外部品かを必ず御確認ください。
- 本モデルの基板については，基板上の各部品の修理は行うことができません。ただし，一部のコネクタについては，修理可能です。

⚠印の部品，または⚠印付きの点線で囲まれた部品は，安全性を維持するために重要な部品です。従って交換時は，必ず指定の部品を使用してください。


3-1. Main Section

Ref.No.	Part No.	Description
1	4-677-632-01	INSULATOR BOTTOM
2	6-600-158-01	IC HYS64D32020GDL-7-B
		(DDR DIMM 256MB)
2	6-600-116-01	IC M470L3224DT0-CB0
		(DDR DIMM 256MB)
* 10	4-674-025-01	BRACKET KEYBOARD
12	4-677-636-01	INSULATOR PC CARD
13	1-761-695-11	NE5.1 PC CARD(EJECTER)
15	6-704-957-01	(FR860)...
		IC RH80532NC049256SL73Y
		(Mobile Celeron 2.2GHz)
15	6-704-132-01	(FR862)...IC RK80532PE067512SL6S3
		(P4 2.66GHz)
16	A-8068-048-A $ #	COMPLETE PWB MBX-88
17	1-756-148-11	SECONDARY, BATTERY, LITHIUM
18	1-761-606-14 #	CARD, MODEM
19	1-827-193-11	NE5.1 CABLE(MDC-MBX)
20	1-827-605-11	JE1.1 FFC(PWR)
21	4-676-840-01 $	(FR860)...ID LABEL L
21	4-676-840-11 $	(FR862)...ID LABEL L
22	X-4626-183-1	HOOD KEYBOARD ASSY (S)
23	1-825-426-11	NE5.1 SPEAKER
24	4-644-357-01	CUSHION SPK
25	4-654-631-01	GUARD SPK
26	4-671-631-01	BRACKET SPEAKER
27	4-674-042-01	MEMORY STICK WINDOW
28	1-825-427-11	NE5.1 SPEAKER(R)
29	A-8067-868-A $	COMPLETE PWB SWX-128
30	4-670-198-01	ESCUSHION TOUCHPAD
31	1-796-319-31	PAD, TOUCH
32	4-672-077-01	ADHESIVE TAPE TP
* 33	4-674-023-01	BRACKET PALMREST L
34	1-478-086-81 $ #	KEY BOARD UNIT (LA)
35	4-671-634-01 &	CUSHION PALMREST
36	X-4626-182-1	HOUSING PALMREST ASSY (S)
* 37	4-674-022-01	BRACKET PALMREST R
38	A-8068-049-A $	COMPLETE PWB SWX-140
39	1-827-189-11	NE5.1 FFC(TP)
40	1-827-192-11	NE5.1 FFC(PWS-TP)
* 41	4-674-024-01	BRACKET TOUCHPAD
* 42	4-674-028-01	BRACKET DRIVE R
43	X-4626-113-1	ASSY QSI COMBO BEZEL
44	1-796-627-11 $ #	COMBO DRIVE (SBW-241)
45	4-670-244-01	SPRING DRIVE R
* 46	4-674-029-01	BRACKET (DRIVE) (L)
* 47	4-674-033-01	BRACKET HDD
48	A-8113-859-A $ #	ASSY HDD 40GB (H) (S)
49	4-673-851-01 &	COVER HDD
50	4-677-197-01 &	FOOT FRONT
51	X-4626-185-1 &	COVER MEMORY ASSY (S)
53	X-4626-186-1 &	COVER MINIPCI ASSY (S)
55	X-4626-181-1	HOUSING BOTTOM ASSY (S)
56	4-670-193-01	LENS FDD
57	4-677-640-01	CUSHION HDD
58	4-671-645-01 &	DOOR BATTERY SPRING

| Ref.No.	Part No.	Description
59	4-673-853-01 &	DOOR BATTERY
60	4-673-852-01 &	COVER MODEM
61	4-670-194-01	COVER HOOD
* 62	4-676-348-01	BRACKET DC
* 63	4-674-019-01	PLATE DC
* 64	4-674-018-01	BRACKET IO
66	4-668-785-01	THERMAL SHEET CPU
67	4-677-635-01	INSULATOR PWS
68	4-673-303-01	SPACER TOUCHPAD BUTTON
69	A-8068-050-A $	COMPLETE PWB PWS-29
71	1-827-606-11	JE1.1 DC CABLE (INT)
72	A-8068-051-A $	COMPLETE PWB IFX-271
73	4-677-639-01	GASKET USB
74	4-677-637-01	CUPPER TAPE
75	4-672-852-01	SHEET HDD
76	4-672-855-01	GASKET SPEAKER
77	1-860-222-11	JE1.1 FPC (MS)
78	4-672-858-01	SHEET BRACKET TOUCHPAD
79	4-674-041-01 &	FOOT REAR
81	4-672-849-01	GASKET LAN
82	4-671-635-01 &	FOOT
* 83	4-674-030-01	GUIDE DRIVE
84	A-8115-824-A $	(FR862)...
		ASSY COOLING UNIT (DTP) (S)
84	A-8115-823-A $	(FR860)...
		ASSY COOLING UNIT (M) (S)
85	4-673-615-01	GASKET SPEAKER R
86	4-677-536-01 &	SHEET RUBBER JE1
88	4-677-647-01	INSULATOR DRIVE
89	4-677-259-01	SPRING DRIVE L
91	4-675-126-01	CAP FDD
* 92	4-676-347-01	BRACKET DUMMY FDD
94	4-673-304-01	SPACER PC CARD
95	9-885-029-05	CONNECTOR, USB(A)
B1	4-216-272-01	SCREW (M2), +
B2	4-635-966-01	SCREW (HEX)
B3	4-641-726-12	<&> SCREW (M2), SPECIAL HEAD
B4	4-641-726-41	SCREW (M2), SPECIAL HEAD
B5	4-644-637-01	<&> GRIP, M2 EG
B6	4-644-637-42	GRIP, M2 EG
B10	4-665-205-01	<&> SPECIAL FLAT HEAD (EG GRIP),M2
B11	4-673-018-02	SCREW SPECIAL HEAD
B12	4-673-019-01	SCREW +B
B13	4-673-121-01	SCREW PWS
B14	4-673-655-01 &	SCREW +B
B15	4-650-481-01 &	SCREW(B1.7),TAPPING

PCG-FR860/FR862 (AM)

※1 **NOTE :** Set the dip switch on the MBX-88 board (Main board) to match with the CPU that is used in this computer.

CPU: 6-704-132-01
IC RK80532PE067512SL6S3

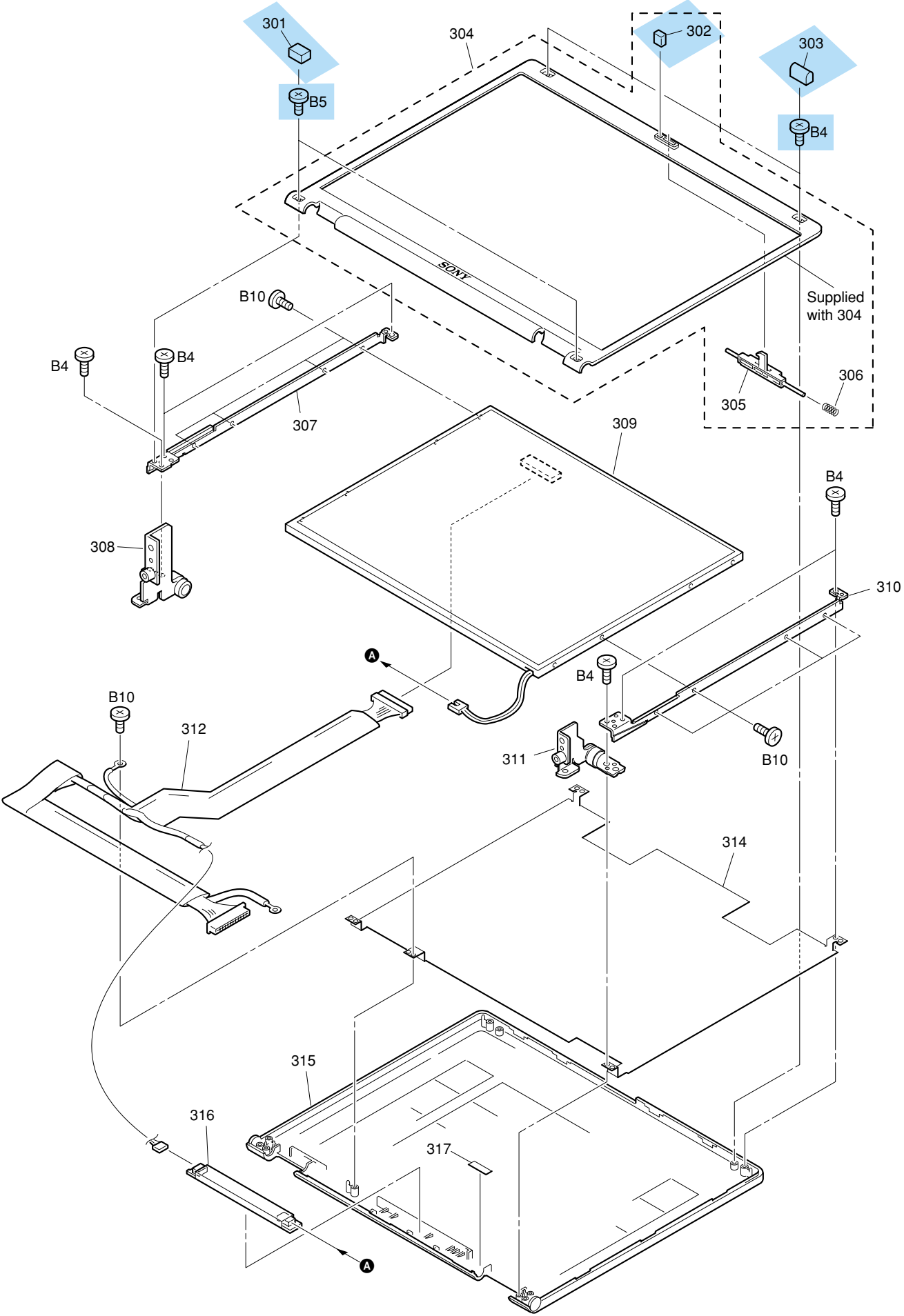MB → DT
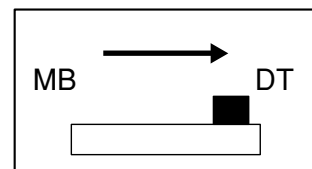
CPU: 6-704-957-01
IC RH80532NC049256SL73Y

MB ← DT
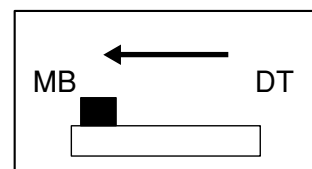
※2 The THERMAL SHEET CPU (Ref. 66) cannot be re-used if it is removed once. When the COOLING UNIT (Ref. 84) is removed, be sure to replace it with the new one.

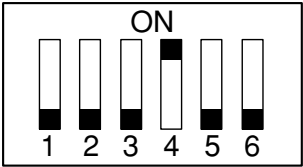※3 When change the CPU (Ref. 15), refer to " Replacing the CPU " in CHAPTER 4.

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3-2. LCD Section – Made by HI –

Ref.No.	Part No.		Description
301	4-671-639-01	&	CUSHION HINGE
302	4-671-637-01	&	CUSHION LATCH
303	4-671-638-01	&	CUSHION LCD
304	X-4625-822-1		BEZEL DISPLAY ASSY(15)(S)
305	4-670-228-01		BUTTON LATCH LCD
306	4-671-640-01		SPRING LATCH LCD
* 307	4-671-454-01		BRACKET LCD L (15)
308	4-671-457-01		HINGE L
309	A-8113-852-A	$ #	ASSY LCD 15(H) GT2 (S)
* 310	4-671-453-01		BRACKET LCD R (15)
311	4-671-456-01		HINGE R
312	1-962-514-11		LCD HARNESS
314	4-671-636-01		LCD SHIELDING
315	X-4625-820-1		HOUSING DISPLAY ASSY(S)
316	1-476-317-21		INVERTER UNIT
317	4-673-299-01		INVERTER TAPE
B4	4-641-726-41	<&>	SCREW (M2), SPECIAL HEAD
B5	4-644-637-01	&	GRIP, M2 EG
B10	4-665-205-01		SPECIAL FLAT HEAD (EG GRIP),M2

Ref.No.	Part No.		Description
			ACCESSORIES
			***********
⚠801	1-478-037-12	$ &	ADAPTOR, AC
802	A-8112-427-A	$ # &	BP2NX SNT (U) ASSY (S)
⚠803	1-757-562-21	&	CORD, POWER
	4-676-794-01	$ &	QUICK START 2670LAX/LBX
	4-676-802-01	$ &	SPEC SHEET (2670LAX/LBX)

801 AC Adaptor

803 Power Cord

802 Battery Pack
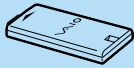
NOTE :
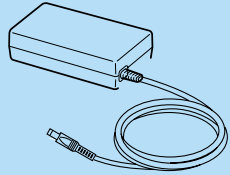Set the DIP switch on the MBX-88 board (Main board) to match with the LCD that is used in this computer.

ON

1 2 3 4 5 6

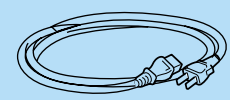The upper position where ON indication is shown is the ON position . The lower position is the OFF position.

No.	1	2	3	4	5	6
ON/OFF	1	1	1	0	1	1

0 : ON   1: OFF

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

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4-1. Replacing the CPU

1. Removing the CPU

① Insert a flat-blade screwdriver into the notch as shown in the illustration and rotate it so that the protrusion comes to the lock release position.

② Pull the CPU gently upward to lift it out of the CPU socket.

Lock position

Lock release position

CPU
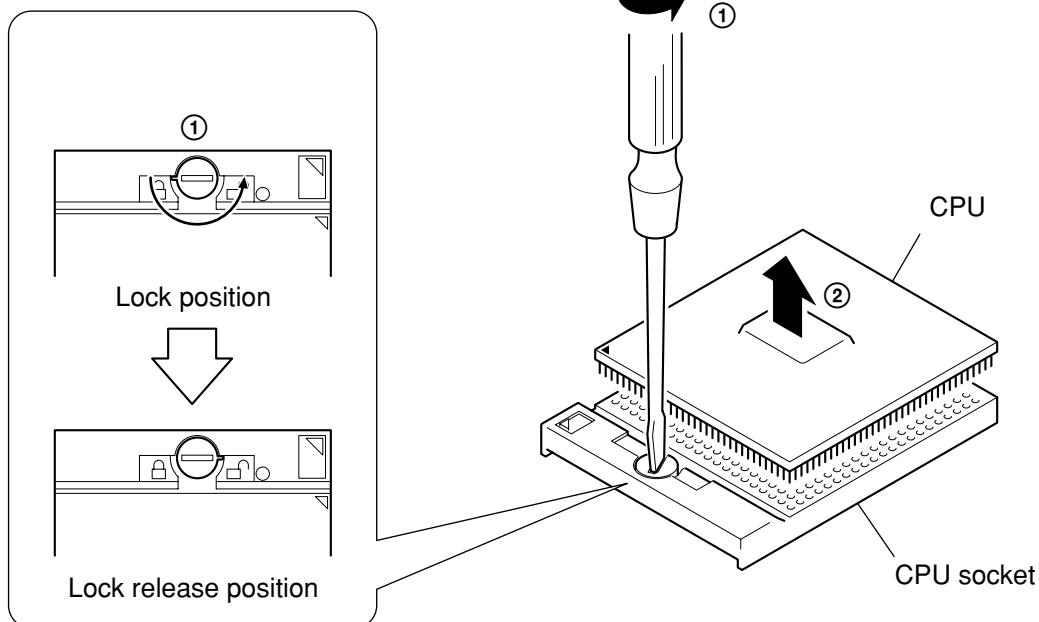
CPU socket

2. Installing the CPU

① Align the triangle reference mark of the CPU with that of the CPU socket and insert all the pins of the CPU to the corresponding holes of the CPU socket.

② While pressing the two positions marked by ○, insert the flat head (-) screwdriver into the specified position and rotate the screwdriver to the LOCK position.

Reference marks

Lock release position

Lock position

Reference marks

CPU

CPU socket
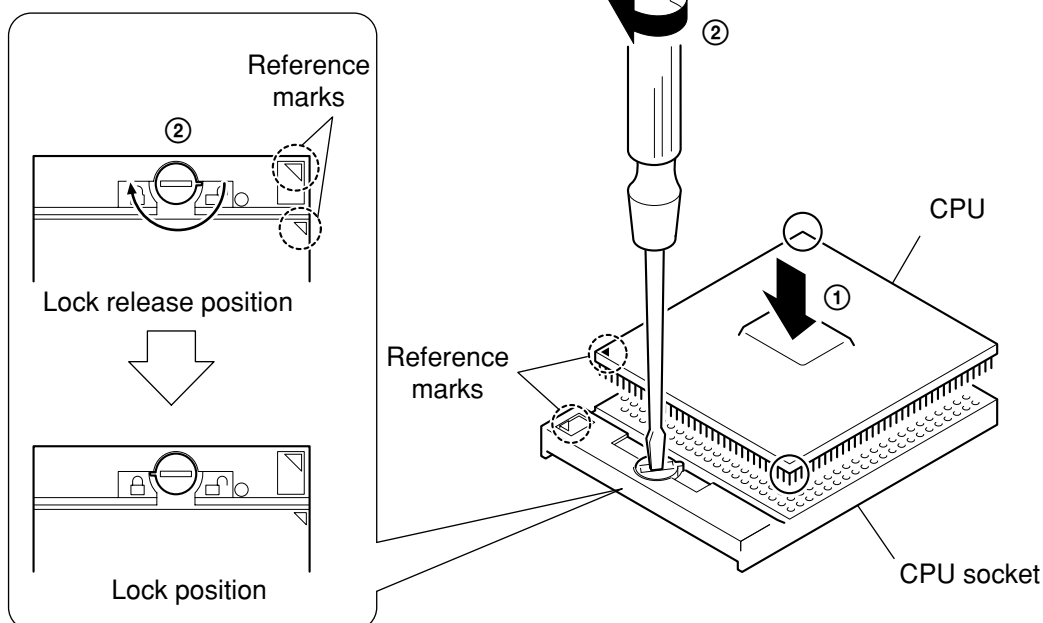
NOTE:

Rotate a flat-blade screwdriver to the lock position securely. If not, the operation of the CPU may become unstable.

List of PCG-FR Series (As of July, 2003)

Model Name	Service Manual Part No.
PCG-FR130	9-876-046-02
PCG-FR780	9-876-048-01
PCG-FRV25 PCG-FRV27	9-876-304-01
PCG-FR860 PCG-FR862	9-876-305-01
PCG-FRV25Q	9-876-308-01

〰 : Additional Models

Revision History

Suffix	Ver.	Date	Contents	QM No.
-01	Ver. 1	2003.07.07	First Edition	

< Remarks >

PCG-FR860/FR862 (AM)